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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,950	06/10/2005	Jan Wietze Huisman	294-212 PCT/US	5540

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SYOSSET, NY 11791

EXAMINER

HAUTH, GALEN H

ART UNIT	PAPER NUMBER
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1791

MAIL DATE	DELIVERY MODE
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11/10/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/529,950	Applicant(s) HUISMAN, JAN WIETZE	
	Examiner GALEN HAUTH	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/10/09 has been entered.

Response to Amendment

2. Acknowledgment is made to applicant's amendment of claims 10 and 13 as well as the addition of claims 18 and 19.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

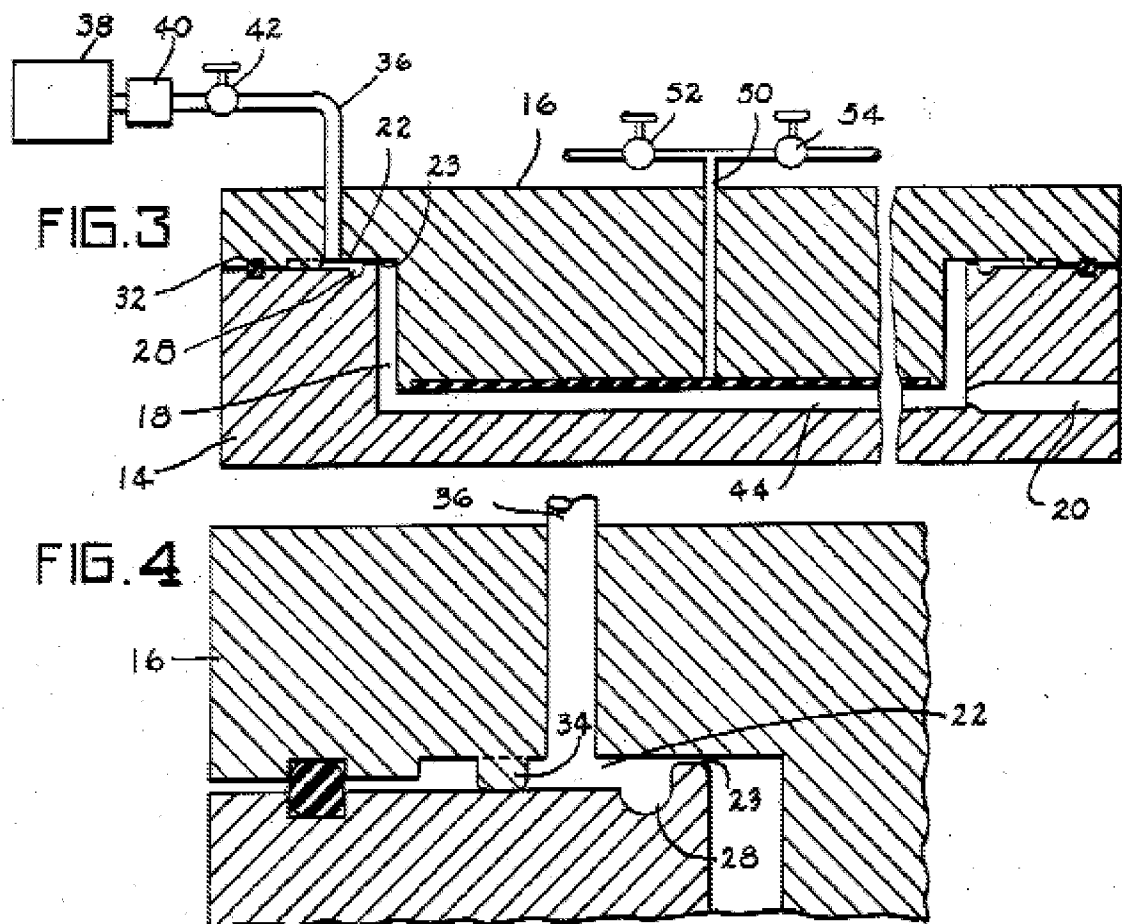
4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 10-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arentsen et al. (PN 6251318) in view of Slaats et al. (PN 3970732).

a. Arentsen teaches a method for forming a part from biodegradable polymers (abstract) in which heating means within a mold are activated followed by introduction of the molding material into the mold (col 11 ln 56-64). Arentsen teaches heating the mold to 150 to 250 degrees Celsius (col 11 ln 67) and the requirement of vents in the mold to allow escape of moisture (col 12 ln 8-10) given that water is used as the blowing agent (col 6 ln 40-44). Thus during introduction and heating of the material the blowing agent is activated (col 12 ln 13-22, given a heated mold and the boiling point of water). Arentsen doesn't teach a reduction in pressure after the mold has been filled or the use of an overdose space.

b. Slaats teaches a method for molding plastic foam material (abstract) in which after the material has been supplied to the cavity it is immediately evacuated by use of a deaeration channel with an intervening overdose space (col 4 ln 63-65, Fig. 3). The mold design of Slaats, shown below, teaches incorporating a vacuum pump (38) connected to a deaeration channel (36) with an overdose recess (28) to contain excess material flashed in the mold.



The flow of material into the recess (28) is controlled by a gap (23). The pressure in the deaeration channel (36), gap (28), and mold (44) is controlled by a valve (42). Slaats teaches that the material foams due to the reduced pressure in the cavity which requires activation of a blowing agent which requires vaporization of a blowing agent. Hence, the reduction of pressure within the mold is used to reduce the pressure of the mold below the boiling point of the blowing agent. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the molding method of Arentsen the reduced pressure molding method of Slaats by adding to the deaeration

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channels of Arentsen overdose recesses and vacuum pumps to improve the rate of foaming while reducing the deformation and warping of the article and maintaining uniformity by reducing the temperature at which the blowing agent activates. In addition the sub-atmospheric molding method of Slaats insures that the principal components of the molding material are completely and intimately admixed (col 5 ln 5-10) while the overdose space guarantees filling of the mold to completion.

c. With regards to claim 11, the mold taught by Slaats above has a vacuum pump (38) which reduces the pressure in the deaeration channel (36), gap (28), and mold (44). The method teaches using reduced pressure to vaporize the blowing agent at a lower temperature to prevent warp and deformation (col 5 ln 17-21 of Slaats).

d. With regards to claim 12, the method of Arentsen in view of Slaats involves forming the foam extremely rapidly due to a reduction in pressure (col 5 ln 11-12 of Slaats). The reduction of pressure at the vent location directly causes rapid foaming (col 5 ln 1-5) which is caused by vaporization of a blowing agent which requires that the conditions present are below the boiling point of the blowing agent.

e. With regards to claims 13 and 14, the mold taught by Arentsen comprises multiple deaeration channels (37) as seen in the figure below.

f. With regards to claim 16, Slaats teaches that the material which flows into the overdose space is completely cured (col 5 ln 33-38). Arentsen teaches that

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the article is cured at a point in which there is cross-linking of the natural polymers (abstract).

g. With regards to claim 18, the method of Arentsen in view of Slaats involves forming the foam extremely rapidly due to a reduction in pressure (col 5 ln 11-12 of Slaats). The reduction of pressure at the vent location directly causes rapid foaming (col 5 ln 1-5) which is caused by vaporization of a blowing agent which requires that the conditions present are below the boiling point of the blowing agent. The vapor is evaporated out of the mold as taught by Arentsen (col 12 ln 8-9).

h. With regards to claim 19, Arentsen teaches using water for a blowing agent (col 6 ln 40-44).

6. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arentsen et al. (PN 6251318) in view of Slaats et al. (PN 3970732) as applied to claim 10 above, and further in view of Pontiff et al. (PN 5059376).

a. Arentsen in view of Slaats teaches using a vacuum pump which removes air from the mold cavity. Arentsen in view of Slaats does not teach that the blowing agent is retrieved from the air removed from the cavity and recycled.

b. Pontiff teaches that air passed through foam containing blowing agent is recycled and recovered from the air (col 6 ln 18-23). It would have been obvious to one of ordinary skill in the art at the time the invention was made to introduce a raw material recycle stream for recycling the blowing agent, because this would

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provide a more efficient process with a decrease in materials lost to the atmosphere reducing the cost of the process.

Response to Arguments

7. Applicant's arguments filed 09/10/2009 have been fully considered but they are not persuasive.

a. With regards to applicant's arguments that Arentsen in view of Slaats fails to teach the method of claim 10, this argument is not persuasive. Applicant argues that Slaats fails to recognize activation of the blowing agent during the introduction and heating of the mass; however, the rejection of claim 10 is based upon a combination of Arentsen in view of Slaats and not Slaats alone. Arentsen recognizes the activation of a blowing agent upon the introduction and heating of a material while Slaats is used to provide a method upon which after a mold has been filled the pressure is reduced to encourage rapid foaming and mold filling as described in the rejection of claim 10 above.

b. Applicant also argues that one of ordinary skill in the art would not apply a pressure reduction technique after activating the blowing agent through heating; however, this is not the only motivation for applying a pressure reduction technique. The reduction in pressure insures proper mold filling and intimate mixing of the material as taught by Slaats. Slaats is relied upon for the purpose of providing an overdose space in connection with ventilation means as well as a vacuum source for reducing pressure within the mold to support rapid foaming without the formation of voids.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GALEN HAUTH whose telephone number is (571)270-5516. The examiner can normally be reached on Monday to Thursday 8:30am-5:00pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571)272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GHH/

/Christina Johnson/
Supervisory Patent Examiner, Art Unit 1791